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quantity of coke-oven tar, though constantly increasing, probably does not at present exceed 50,000 tons. It may be expected, however, that with the more general introduction of electricity for lighting purposes and the consequent diminution of the supply of gas tar, the coke-oven tar will eventually become the main source of our aromatic hydrocarbons." To this it should be added that the increasing use of 'water-gas,' in this country at least, is decreasing the supply of coal-tar, so that the time is certainly approaching when it will pay to collect the tar from the coke-ovens.

The translator expresses the hope "that this work will be found valuable not only to the technical chemist, but also to the dyer, analyst, merchant, patent agent, etc., and in fact to every one concerned with the production, handling, or use of the coal-tar colours." His hope is undoubtedly well founded. He might have added the patent lawyers, many of whom have learned to rattle off their 'ortho,' 'meta,' 'para' with a facility that would put many a modest chemist to the blush. IRA REMSEN.

Elementary Lessons in Electricity and Magnetism. SYLVANUS P. THOMPSON. New York, Macmillan & Co. 1894. Pp. 628. Price, \$1.40.

The first edition of this book appeared in 1881. It at once became immensely popular, and deservedly so, on both sides of the Atlantic. The author combined in a rare degree the three principal requisites for the preparation of a good text-book. He was himself a widely known scholar and investigator in the department of science specially treated; he was more than ordinarily accomplished in the art of exposition, and he was an experienced and successful teacher. His possession of these qualifications in undiminished magnitude is evidenced in the preparation of this new edition now offered to the public, which is the original work in plan, but entirely revised and largely re-

written, with an enlargement of scope sufficient to embrace the important additions to the science which have been made during the past fifteen years. To enable this to be done without undesirable condensation, the size of the volume has been somewhat increased. Indeed, one of the larger merits of the plan of the book is to be found in the conscientious retention of the long known and well established principles and facts of the science, to neglect which for the newer and more novel developments is a temptation to which too many authors of text-books in physical science have yielded. While retaining all essential 'fundamentals,' Professor Thompson has found place for the presentation of all of the essentials of recent discovery, and while this has been done with conciseness it has also been done with that clearness and logical appropriateness for which the writings of this author are justly celebrated. The wonderful results of the study of alternating currents and alternating current machinery are well presented in this edition, as are recent advances in both theory and experiment due to Hertz, Fitzgerald, Boltzmann, Lodge and others. At the end is an excellent series of questions, classified as to the chapters of the books to which they refer, which cannot fail to add much to the value of the book in use, especially for those who study without an instructor. In fact, as an 'all around' elementary text-book in electricity and magnetism it will be difficult to find another in the English language that is superior or even equal to this.

T. C. M.

The Birds of Eastern Pennsylvania and New Jersey, prepared under the direction of the Delaware Valley Ornithological Club. By WILMER STONE. Philadelphia, 1894. 8°, pp. vii+185.

Eastern Pennsylvania has long been a favorite field for lovers of birds. Audubon, Wilson, Nuttall, Cassin, Peale, Woodhouse, Gambel, Bonaparte, Heerman, Haldeman,

Ord, Baird and Trumbull may be numbered among the contributors to its ornithological literature. Aside from general works and special or local papers, three publications have been devoted to the birds of this particular area: (1) Barton's *Fragments of the Natural History of Pennsylvania*; (2) Trumbull's *Birds of East Pennsylvania and New Jersey*; (3) Witmer Stone's *Birds of Eastern Pennsylvania and New Jersey*. Barton's 'Fragments' is a rare folio printed in Philadelphia in 1799, and is something of a curiosity. Trumbull's list is a carefully annotated and attractively illustrated catalogue published in Glasgow, Scotland, in 1869, and reprinted in America. Stone's 'Birds of Eastern Pennsylvania and New Jersey' is a large octavo published by the Delaware Valley Ornithological Club in December, 1894. It is a thoroughly modern work, abounding in exact data and authorities, and based largely on the field observations of Mr. Stone and other members of the Delaware Valley Ornithological Club—evidently a very active organization. It is divided into two principal parts: An essay on the Geographic Distribution and Migration of Birds; and a Systematic Annotated List of the Birds of the region. To these are added a bibliography and an index. The chapter on Geographic Distribution is subdivided into general and local parts. The general part is weak, and in the references cited some of the more recent and important papers are overlooked. The local part is excellent and gives ample evidence of Mr. Stone's familiarity with the somewhat diverse physical and faunal characteristics of the region. Some idea of its scope may be had from the headings: The Maritime Marshes, the Pine Barrens, the Cedar Swamps, the Lowlands of Pennsylvania, the Delaware Valley, the Susquehanna Valley, the Interior Uplands, the Appalachian District, the Alleghany and Pocono Mountains. This part is accompanied by a curious col-

ored map which might be termed a physico-faunal map of Eastern Pennsylvania and New Jersey.

The Canadian or Boreal element in the fauna is restricted in Pennsylvania to "the tops of the highest mountains and the elevated plateau region, where the deep hemlock forests, with their cool brooks and dense shade, still remain undisturbed. The passage from the Alleghanian to the Canadian zone is here, as a rule, remarkably distinct, as the more northern birds keep strictly to the virgin forest." The settlement of the region has proved particularly destructive to the Canadian species. It is melancholy to be told that "where the forest has been removed the Canadian species for the most part disappear, and judging from present indications, it would seem that this element in our fauna, which once undoubtedly extended over a much greater area than at present, may soon almost entirely disappear, as the lumbermen year by year encroach upon the forest tracts."

The chapter on *Bird Migration* is full of interest and replete with new information respecting the region studied.

In the Systematic part no less than 352 species are recorded on good evidence as occurring within the area embraced by the catalogue. A new departure is here introduced which more pretentious works would do well to follow. Instead of the much abused term '*Habitat*' the '*Breeding range*' and '*Winter range*' of each species are given. Mr. Stone is to be congratulated upon the distinction of being first to inaugurate this reform, which is bound to come into general use in the near future. Another improvement that might be made in all lists of birds is the transfer of accidental stragglers from the body of the work to a special list at the end. Since such extra-limital species form no part of the proper fauna of a region, why should they be included among the regular inhabitants? C. HART MERRIAM.